

ZMATH 2011a.00723

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Transforming spreadsheet-based numerical and graphical quadratic sequences into pencil-paper algebraic expressions, and prospective teachers.

Int. J. Math. Educ. Sci. Technol. 42, No. 1, 117-122 (2011).

Summary: This note demonstrates multiple representations (numerical and graphical) of spreadsheet-based quadratic sequences together with prospective teachers' pencil-paper transformations of these numerical sequences into a corresponding symbolization as algebraic expressions. With the majority of prospective teachers, the experience of school mathematics is one of disaffection. They are in a teacher education programme that offers them certification to teach up to grade nine in the public schools. Their work illustrates processes, such as recognizing and extending patterns, by specializing and generalizing particular functional relationships. Insights gained from various methods used by them, together with the instructional affordances, i.e. the instructional benefits of spreadsheets, represent a curricular continuity between quadratic, numerical sequences and related algebraic expressions and suggest a possible change to the order in which the two are introduced.

Classification: H23 R23 B53

Keywords: spreadsheet-based sequences; elementary algebra; prospective teachers

doi:10.1080/0020739X.2010.519791